

Lesson 8 Respiratory System

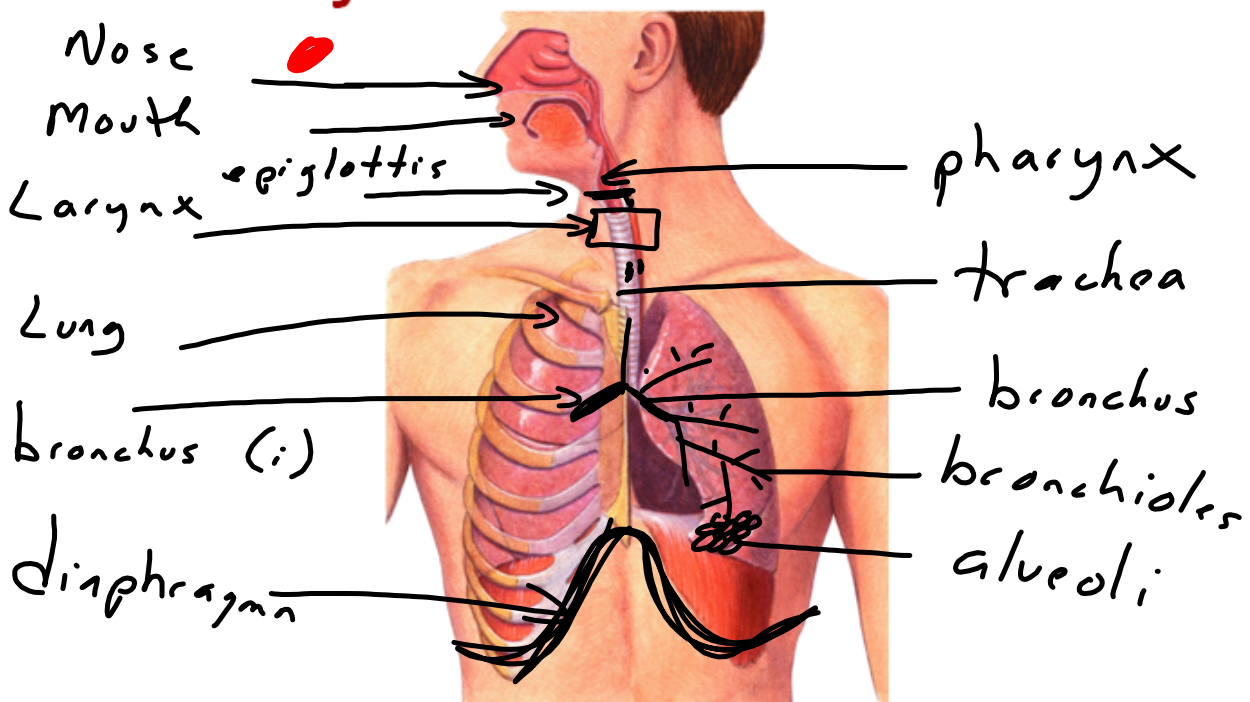
What Is Respiration?

In biology, *respiration* means two different things.

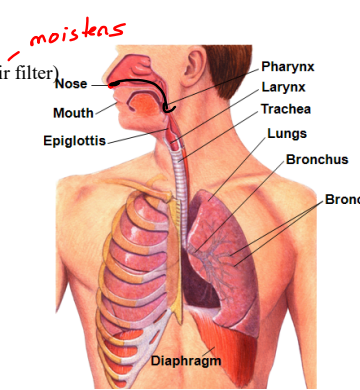
Cellular respiration is the release of energy from the breakdown of food in the presence of oxygen. ^{mitochondria}

At the organism level, respiration is the process of gas exchange—the release of carbon dioxide and the uptake of oxygen between the lungs and the environment.

37-3 The Respiratory System



- 1) Air enters the nose or mouth and moves to the pharynx, or throat. (nose = air filter)
- 2) The **pharynx** serves as a passageway for both air and food.



- 3) Air moves from the pharynx into the **trachea**, or windpipe.

The epiglottis covers the entrance to the trachea when you swallow.

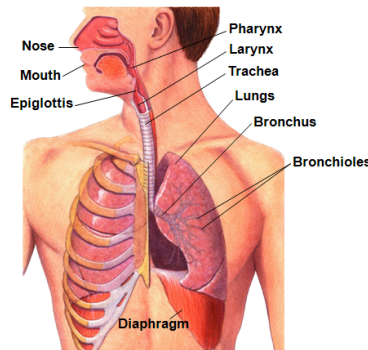
* At the beginning of the trachea

is the larynx or voice box (covered by Adams apple)

* Trachea has rings of cartilage to hold it open and is lined with cilia

- 4) Air then passes through the trachea into two large passageways in the chest cavity called **bronchi**.

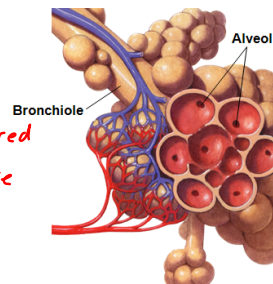
Each bronchus leads into one of the lungs.



- 5) In each lung, the bronchus subdivides into smaller bronchi, and then into bronchioles.

- 6) Bronchioles subdivide into millions of tiny air sacs called **alveoli**.

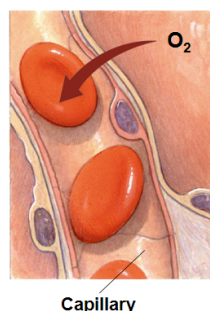
* O_2 molecule attaches to a red blood cell here



Gas Exchange

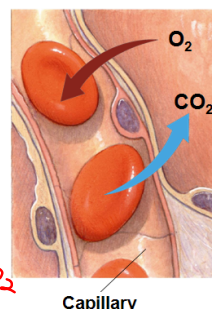
Gas exchange takes place in the alveoli.

Oxygen diffuses into the blood.



Carbon dioxide in the blood diffuses into the alveolus.

(Remember CO_2 is not carried by red blood cells)



* Levels of CO_2 are what determine breathing rate!!